



# UNITED STATES PATENT AND TRADEMARK OFFICE

W  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,682	07/30/2001	Yasutaka Ito	110580.01	9838
25944	7590	04/30/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			PAIK, SANG YEOP	
		ART UNIT	PAPER NUMBER	
		3742	DATE MAILED: 04/30/2004	

24

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/916,682	ITO, YASUTAKA	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sang Y Paik	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 February 2004.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 9-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 9-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.

- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 11-16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (US 6,080,970) or Arami et al (US 5,904,872) in view of Koontz (US 5,877,473).

Yoshida et al or Arami et al disclose the ceramic heater claimed including a disk-shaped ceramic substrate with a heat-generating pattern, having a combination of spiral and bending pattern, disposed on the surface of the ceramic substrate, a semiconductor wafer heated on the surface opposite to the surface of the ceramic substrate. Arami et al further show that the disk-shaped ceramic substrate has the diameter of 8 inches or larger to accommodate a wafer having a diameter of 8 inches or 203 mm. Yoshida et al or Arami et al teach that the ceramic substrate can be made of aluminum nitride. However, Yoshida et al and Arami et al do not show that the bending portion describes an arc having a curvature radius within a range of 0.1 mm to 20 mm.

Koontz shows a heating pattern having a bending portion whose curvature radius is within the claimed range to keep the width of heating element consistently equal. Koontz teaches that such curvature reduces cold and hot spots along the heating element. In view of Koontz, it would have been obvious to one of ordinary skill in the art to adapt Yoshida et al or Arami et al

Art Unit: 3742

with the claimed curvature bending to eliminate hot and cold spots and thus provide an uniform heating across its heating surface.

With respect to claims 14 and 21, it would have been obvious to one of ordinary skill in the art to modify the diameter of the ceramic substrate more than 300 mm or more since the size of the ceramic substrate would have been dependent upon the size of the wafer that is being heated by the ceramic substrate and to provide sufficient heating area to encompass the entire wafer area for uniform heating across the wafer.

3. Claims 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al or Arami et al in view of Koontz as applied to claims 9, 11-16 and 18-22 above, and further in view of Ito et al (US 6,072,162) or Furuya et al (US 6,084,215).

Yoshida et al or Arami et al in view of Koontz discloses the ceramic heater claimed except having through holes for inserting supporting pins.

Ito et al and Furuya et al shows a wafer supporting heater having a plurality of through holes for inserting supporting pins to support a wafer. In view of Ito et al or Furuya et al, it would have been obvious to one of ordinary skill in the art to adapt Yoshida et al or Arami et al, as modified by Koontz, with the through holes to provide the supporting pins so that the wafer can be conveniently moved to or from the ceramic substrate during the wafer treating process.

#### *Response to Arguments*

4. Applicant's arguments filed 2/11/04 have been fully considered but they are not persuasive. The applicants argue that the applied prior art Koontz fails to teach the claimed radius of .1 mm to 20 mm. This argument is not persuasive since Koontz clearly shows in column 7, lines 63, that the radius is in the range from 8.8 mm. Furthermore, Koontz teaches that

Art Unit: 3742

the width of the heating element is maintained constant to prevent the cold or hot spots. The applicants argue that since the heating element of Koontz is not formed on the substrate but rather within the substrate, Koontz is not combinable with the base primary references. While, the heating structure of the device in Koontz is different, the Koontz reference is in the same field of endeavor which is in the field of electrical heating devices and is reasonably pertinent to the problem that the applicants are concerned with, i.e., maintaining a uniform heating surface. Thus the applicants' argument is not deemed persuasive.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (6:30-4:00) First Friday Off.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sang Y Paik  
Primary Examiner  
Art Unit 3742

*S. Paik*

syp